C2

11. (Amended) The device of Claim 1, further comprising a detector for measuring a physicochemical property of a biological sample.

C3

12. (Amended) The device of Claim 1, wherein said at least one temperature regulated zone comprises a metal bar in fluid communication with a plurality of water sources containing water at said at least two temperatures, said metal bar being in thermal communication with said at least a portion of said sample pathway.

52. (New) The device of Claim 1, wherein said device comprises a microfluidic substrate comprising at least one temperature regulated zone which is capable of cycling between at least two temperatures, and at least one constant temperature zone.

53. (New) The device of Claim 1, wherein said device comprises a microfluidic substrate comprising several temperature regulated zones capable of cycling between at least two temperatures.

54. (New) The device of Claim 1, wherein said flowing sample goes through a plurality of temperature cycles as it travels through the temperature regulated zone.

55. (New) The device of Claim 8, wherein said channels are fed in series with different samples separated from each other by separators.

56. (New) The device of Claim 8 wherein the portion of the channel which crosses the temperature regulated zone is rectilinear.

57. (New) The device of Claim 1, wherein said device comprises one temperature regulated zone.

58. (Amended) The device of Claim 2, wherein the force generated by said force supplying member is pressure.

C4

59. (Amended) The device of Claim 58, further comprising a sample supplier which supplies a sample to said at least one pathway.

60. (Amended) The device of Claim 59, further comprising at least one inlet basin positioned at a first end of said at least one pathway such that said sample supplier supplies said sample to said inlet basin and said sample travels from said inlet basin to said at least one pathway.

61. (Amended) The device of Claim 60, further comprising at least one outlet basin positioned at a second end of said pathway.

62. (Amended) The device of Claim 61, further comprising at least one reagent supplier positioned between said inlet basin and said outlet basin.

63. (Amended) The device of Claim 62, wherein said device comprises a plurality of said pathways.

64. (Amended) The device of Claim 58, wherein said microfluidic substrate consists essentially of silicon.

C4 cont.

65. (Amended) The device of Claim 58, further comprising a detector for measuring a physicochemical property of a biological sample.

66. (Amended) The device of Claim 58, wherein said thermal cycling zone comprises a metal bar in fluid communication with a plurality of water sources containing water at said at least two temperatures, said metal bar being in thermal communication with said at least a portion of said sample pathway.

67. (Amended) The device of Claim 58, wherein said device comprises a microfluidic substrate comprising at least one temperature regulated zone which is capable of cycling between at least two temperatures, and at least one constant temperature zone.

68. (Amended) The device of Claim 58, wherein said device comprises a microfluidic substrate comprising more than one temperature regulated zone capable of cycling between at least two temperatures.

69. (Amended) The device of Claim 58, wherein said flowing sample goes through a plurality of temperature cycles as it travels through the temperature regulated zone.

70. (Amended) The device of Claim 63, wherein said pathways comprise channels arranged in parallel, and wherein said channels are fed in series with different samples separated from each other by separators.

C5

71. (Amended) The device of Claim 70 wherein the portion of the channel which crosses the temperature regulated zone is rectilinear.

Remarks

Applicant provides herewith a substitute specification which reflects amendments to the claims, including the claim amendments presented herein. Applicant has also provided a marked up version of the substitute specification indicating the claim amendments made above. As